CLAIMS

What is claimed is:

1. A sensing device for use with a liquid storage tank having primary and secondary areas, comprising:

a first sensing component configured to determine a vapor pressure of the primary area; and

a second sensing component configured to determine a vapor pressure of the secondary area upon isolation of the primary area from the secondary area at a predetermined liquid level in the liquid storage tank; and

a third sensing component configured to determine a temperature in the liquid storage tank.

2. The sensing device as recited in claim 1, comprising a fourth sensing component configured to determine a temperature of the primary area, and wherein the third sensing component is configured to determine a temperature of the secondary area.

3. The system as recited in claim 1, wherein the first and second sensing components comprise EVAPorative-pressure sensors couplable to the liquid storage tank.

4. The system as recited in claim 1, wherein at least one of the first and second sensing components comprises a temperature and EVAPorative-pressure sensor couplable to the liquid storage tank.

5. The system as recited in claim 1, wherein the first, second and third sensing components are operable in a liquid fuel tank having a liquid fuel disposed therein.

6. A liquid storage tank, comprising:

a housing having primary and secondary areas configured to be isolated from each other upon insertion of a predetermined amount of liquid in the housing;

a first sensing component located in the primary area and the configured to determine vapor pressure;

a second sensing component located in the secondary area and configured to determine vapor pressure; and

a third sensing component located in the housing and configured to determine temperature.

7. The liquid storage tank as recited in claim 6, wherein the housing is configured to store liquid fuel.

8. The liquid storage tank as recited in claim 6, wherein the housing comprises plastic.

9. The liquid storage tank as recited in claim 8, wherein the housing comprises blow-molded plastic.

10. The liquid storage tank as recited in claim 6, wherein the housing is configured to reside in a vehicle.

11. A vehicular system, comprising:

a vehicle;

a fuel tank disposed in the vehicle, the fuel tank having primary and secondary areas configured to isolate from each other upon insertion of a predetermined amount of fuel in the fuel tank;

first and second sensing components configured to determine vapor pressure and located in the primary and secondary areas, respectively; and

a third sensing component located in the fuel tank and configured to determine temperature.

12. The vehicle system as recited in claim 11, wherein at least one of the first, second and third sensing components is configured to communicate with processing circuitry.

13. The vehicle system as recited in claim 11, comprising an indicator configured to indicate a quantity of fuel in the fuel tank, wherein the indicator is configured to communicate with the processing circuitry.

14. The vehicle system as recited in claim 11, wherein the vehicle is an automobile.

15. The vehicle system as recited in claim 11, wherein at least one of the first and a second sensing components comprises a temperature and evaporation-pressure sensor.

16. The vehicle system as recited in claim 11, wherein the fuel tank comprises a plastic material.

17. The vehicle system as recited in claim 16, wherein the fuel tank comprises an blow-moldable plastic.

18. The vehicle system as recited in claim 11, comprising a fourth sensing component located in the primary area and configured to determine temperature, and wherein the third sensing component is located in the secondary area.

19. A liquid level sensing system for use in a tank having primary and secondary areas configured to isolate from each other upon insertion of a predetermined amount of liquid in the tank, comprising:

a first sensing component located in the primary area and configured to determine vapor pressure;

a second sensing component located in the secondary area and configured to determine vapor pressure;

a third sensing component located in the tank and configured to determine temperature; and

processing circuitry configured to communicate with the first, second, and third sensing components, wherein the processing circuitry is configured to determine a level of liquid in the tank.

20. The liquid level sensing system as recited in claim 19, wherein at least one of the first and second sensing components comprises a temperature and EVAPorative-pressure sensor.

21. The liquid level sensing system as recited in claim 19, wherein the first, second, and third sensing components are operable in a liquid fuel environment.

22. The liquid level sensing system as recited in claim 19, comprising an indicator electrically coupled to the data processing circuitry and configured to indicate a quantity of fuel in the tank visually.

23. A method of determining a level of liquid in a storage tank having primary and secondary areas configured to isolate from each other upon insertion of a predetermined amount of liquid in the tank, comprising the acts of:

determining vapor pressures in each of the primary and secondary areas upon isolation thereof;

determining a temperature of at least one of the primary and secondary areas; and

calculating a level of liquid in the tank via the determined vapor pressures and temperature.

24. The method as recited in claim 23, comprising the act of correlating the level of liquid to a quantity of liquid in tank.

25. The method as recited in claim 24, wherein the act of correlating includes correlating via a look-up-table.

26. The method as recited in claim 24, comprising displaying the quantity of fuel in the tank visually via an indicator.

27. A computer program for use with a liquid storage tank having primary and secondary areas configured to isolate from each other upon insertion of a predetermined amount of liquid in the tank, the computer program being disposed on one or more tangible media, comprising:

code for calculating a level of liquid in the tank via input values representative of the vapor pressure in each of the primary and secondary areas and of the temperature in at least one of the primary and secondary areas; and

code for correlating the level of liquid in the tank to a quantity of fuel in the tank.

28. The computer program as recited in claim 27, wherein the code for correlating includes a look-up-table.

29. The computer program as recited in claim 27, wherein the code for calculating determines the level of liquid in the tank via a formula, the formula being:

$$h_{new} = h_{\max} - (\frac{(h_{\max} - h_i)(T_{Operating})(P_{Initial})}{(T_{Initial})(P_{Operating2})}) - (\frac{(P_{Operating1} - P_{Operating2})}{(\rho_{fuel})(g)})$$

30. The computer program as recited in claim 27, comprising a code for comparing decay rates of the vapor pressure and temperature in the tank subsequent to operation with a pre-determined vapor pressure and temperature decay rates to determine integrity of a fuel system.